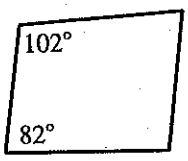
H. Geom (6.1-6.4) Name _____

Determine whether each quadrilateral must be a parallelogram. Justify your answers.

(1) 

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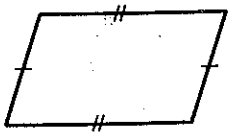
(2) 

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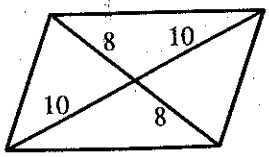
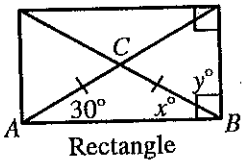
(3) 

_____

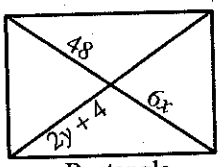
_____

Find the values of x and y for each quadrilateral.

(4) 

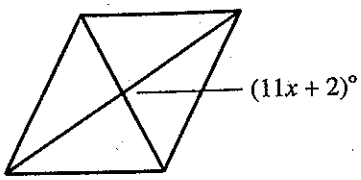
Rectangle

_____

(5) 

Rectangle

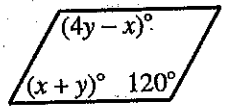
_____

(6) 

Rhombus

_____

What values of x and y guarantee that each quadrilateral is a parallelogram?

(7) 

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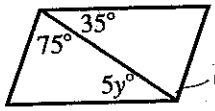
(8) 

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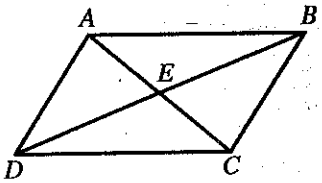
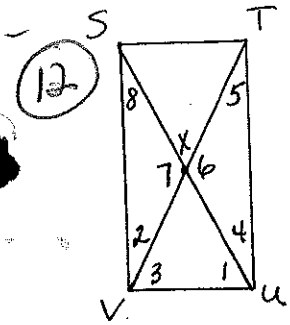
Consider the quadrilateral $ABCD$. What values of x and y will guarantee that it is a parallelogram?



(9) $m\angle BAD = m\angle BCD = (3x)°$ and $m\angle ADC = (2x)°$, $x =$ _____

(10) $AB = 3x$, $CD = 2x + 4$, $BC = 7y - 2$, $AD = 4y + 7$, $x =$ _____ $y =$ _____

(11) $AE = 17$; $BE = 3x - 5$; $CE = 2y + 5$; $DE = 2x + 4$, $x =$ _____ $y =$ _____

(12) 

In Rectangle STUV, find: (Show Work)

a) $\angle 1 = 74°$

$m\angle 4 =$ _____

b) $TU = 24$

$SV = x + 6$

$ST = y + 3$

$VU = 18$

$x =$ _____

$y =$ _____

(13) use □STVU from #12

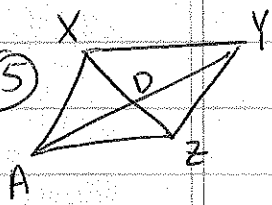
c) $XT = 24$ $X =$
$UX = 8y$ $y =$
$XV = 6 - 3X$

d) $m\angle 4 = 3x°$
$m\angle 6 = 9x°$
$x = ?$

e) $ST = 4x - y$
$TU = 10$
$VU = 8$
$SV = 2x + y$
$x =$
$y =$

(14) Is □ABCD a parallelogram? Is it a rectangle?

A(8,10)
B(16,17)
C(16,11)
D(8,4)

(15) 

If XYZA a parallelogram, & $XD = x^2 - 8$ & $DZ = 2x$
what could x be?

(16) Factor:

a) $x^2 - 7x = -12$ b) $17x = x^2 + 42$ c) $x^2 - 64 = 0$ d) $x^2 - 3x = 18$

17) In Rectangle ABCD, $AB = 10$, $AD = 4$, What is AC?

18) In Square AXYT, find x if $m\angle ATX = 5x + 10$

Solve the systems

19) $2x + y = 10$
$x - y = -5$

Solve:

20) $y = 2x + 4$
$2x + 3y = 4$

21) $-2x + y = 8$
$3x - 4y = -2$

22) $5x + 4y = 6$
$-2x - 3y = -1$